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EASTERN EUROPEAN GROSS
NATIONAL PRODUCT, 1955-1975

This report was prepared as a part of the US contribution to a NATO study comparing economic trends in the Free World and the Sino-Soviet bloc. Other parts of the US contribution concerned with Eastern Europe are: E-4, Eastern European Manpower and Physical Production, 1950-1955 and E-5, Eastern European GNP, 1950-1955.

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European Satellite Gross National

Product, 1955-1975*

A. Summary

The projections of European Satellite GNP to 1975, presented in Table 1, indicate an increase of nearly 200 percent. Expressed in 1955 dollars, it is estimated that the European Satellite GNP will be nearly 200 billion dollars in 1975. This represents an average annual rate of growth between 5 and 6 percent, somewhat below the annual rate of growth estimated for these countries during the period 1950-1955. The projected rate of growth to 1975 implies a more than doubling of per capita GNP.

A review of the sectors originating the national product reveals widely different growth rates among the sectors of the economy. The greatest rate of growth is estimated for industry which is projected to increase 4 times or more in the 20 year period. Agriculture, on the other hand, is expected to continue to be of concern to the Satellite governments increasing by only 25 percent from 1955 to 1975. Services, reflecting the growth of population, the expansion of socialization, and the increase in educational and medical services is expected to increase by about 80 percent.

The economic expansion projected to take place for the Satellites in total is not expected to be distributed equally over all member countries. GNP is estimated to grow more rapidly in Poland, Rumania, and Bulgaria (Group I countries) than in Czechoslovakia, East Germany, and Hungary (Group II countries). Industry in the Group I countries is projected to grow much more rapidly than in the Group II countries so that by 1975 the differential between the two groups of countries will be substantially narrowed. Agriculture, also, is expected to grow more rapidly in the Group I countries, thus increasing the differential between the two sets of countries. Responding primarily to the more rapid population growth expected in the Group I countries, the Services sector is projected to grow much more rapidly in these countries than in the Group II countries.

B. Methodology

These projections of economic growth are based upon limited evidence as to historical trends and future policy goals. Prewar experience is of little use for postwar projections because of the basic change in economic and political institutions, boundary changes, and the effects of the depression of the 1930's. The postwar period is strongly affected by reconstruction and by the transition to Communism. In certain respects, the European Satellites are still in a period of transition--i.e., only about 30 percent of agricultural land has been collectivized--and will be in a transition period for some time to come.

* Excluding Albania.

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TABLE 1

Gross National Product of European Satellites,
1955-1975^{a/}

A. Billion 1955 Dollars

<u>Sectors of Origin</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Agriculture	13.4	14.5	15.3	15.9	16.8
Industry	32.3	47.8	66.2- 70.7	89.1-103.4	119.8-147.3
Services	14.4	16.7	19.2- 20.0	22.2- 23.4	25.8- 27.5
Total	60.1	79.0	100.7-106.0	127.2-142.7	162.4-191.6

B. Indexes (1950 = 100)

<u>Sectors of Origin</u>					
Agriculture	100	108	114	119	125
Industry	100	148	205-219	276-320	371-456
Services	100	116	133-139	155-163	179-191
Total	100	131	168-176	212-238	270-319

a/ Excluding Albania

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TABLE 2

Gross National Product of Group I Countries,^{a/}
1955-1975

A. Billion 1955 Dollars^{b/}

<u>Sectors of Origin</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Agriculture	9.1	9.9	10.5	11.2	11.8
Industry	12.9	19.2	28.0-31.0	39.0-48.0	55.2-72.8
Services	6.0	7.7	9.4-10.3	11.3-12.4	13.3-14.6
Total	28.0	36.8	47.5-51.8	61.5-71.6	80.3-99.2

B. Indexes (1950 = 100)

<u>Sectors of Origin</u>					
Agriculture	100	109	116	123	130
Industry	100	149	217-240	302-372	428-564
Services	100	128	157-171	188-207	221-244
Total	100	132	170-185	220-256	287-354

^{a/} Includes Bulgaria, Poland, and Rumania.

^{b/} Tables 2 and 3 will not add to produce the number in Table 1 because of rounding.

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TABLE 3

Gross National Product of Group II Countries,^{a/}
1955-1975

A. <u>Billion 1955 Dollars</u> ^{b/}					
<u>Sectors of Origin</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Agriculture	4.3	4.6	4.7	4.8	4.9
Industry	19.4	28.5	38.2-39.7	50.0-55.5	64.6-74.5
Services	8.4	9.1	9.7	10.8-11.0	12.5-12.8
Total	32.1	42.2	52.6-54.1	65.6-71.3	82.0-92.2

B. <u>Indexes (1950 = 100)</u>					
<u>Sectors of Origin</u>					
Agriculture	100	107	109	111	114
Industry	100	147	197-205	258-286	333-384
Services	100	108	116	128-131	149-152
Total	100	131	164-168	204-222	255-287

^{a/} Includes Czechoslovakia, East Germany, and Hungary

^{b/} Tables 2 and 3 will not add to produce the numbers in Table 1 because of rounding.

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Other areas of uncertainty are the political future of East Germany, the degree to which policies emphasizing investment at the expense of consumption can be maintained in view of the proximity of the West and the past attachments of some of the Satellites to the West, the degree of economic integration of the Bloc, and the future development of Satellite trade with the West.

1. Basic Assumptions

The following assumptions were considered necessary for the purposes of the projection:

a) All countries presently classified as European Satellites (Albania*, Bulgaria, Czechoslovakia, Hungary, Poland, Rumania and East Germany) will remain Satellites during the 1955-75 period.

b) There will be no change in international boundaries.

c) There will be no increase in international tensions. Military forces will not be increased, although military expenditures will rise with the greater complexity of armaments.

d) The primary goal of economic policy in each Satellite will be to stimulate economic growth. Corollaries of such a policy are:

1) Investment will, in general, be given priority over consumption and will grow faster than consumption.

2) Industry and related occupations will, in general, have priority over agriculture in absorbing increments to the labor force.

e) The collectivization program in agriculture will continue and most of agricultural land will have been collectivized by 1975.

f) The Satellite economies will become more integrated than in the past. This will occur through increases in intra-Bloc trade, integrated planning of investment, and some capital movement between countries. Each country will, however, continue the development of its own basic industries.

g) The Satellites will increase trade with non-Bloc countries, but the Bloc as a whole will remain largely self-sufficient in times of emergency.

2. General Methodology

Within the framework of the foregoing assumptions the following methodology was employed:

* Albania was excluded from this projection.

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- a) The total labor force was projected.
- b) Output and product per worker in agriculture were projected. The agricultural labor force required to produce this output was then derived.
- c) The labor force in Services was projected and when coupled with the estimated increases in the output per worker results in an estimate of the Services sector output.
- d) The labor force projection for the "Industrial" sector (including industry proper, construction, transportation and communication) was derived as a residual and applied to the projected output per worker in the "Industrial" sector to obtain an estimate of "Industrial" output.
- e) Gross National Product was computed by summing the projected outputs of the Agricultural "Industrial" and Services sectors. The result is presented in the form of a range reflecting alternative assumptions regarding the growth of output per worker in the agricultural and non-agricultural sectors.

Agriculture was projected separately from the rest of the economy because of special problems of agricultural production, the great discrepancy between output per worker in agricultural and non-agricultural sectors, and the fact that, at least the basic requirements for agricultural products can be related to determinable factors such as population growth.

Projections were made for two groups of countries rather than for each Satellite. Group I (Poland, Bulgaria, and Rumania) is a group of relatively underdeveloped countries with more than 50 percent of the population engaged in agricultural activities and a relatively rapidly growing population. Poland is the dominate member of this group and resembles the USSR more than any other Satellite in economic structure. All the Group I countries are located near the USSR and have no land boundaries with the West.

Group II (Czechoslovakia, East Germany and Hungary) is made up of relatively developed countries with a smaller share of the labor force engaged in agriculture (25 to 40 percent) and a more slowly growing population. Czechoslovakia and East Germany have long land boundaries with the West, and, in the past had a cultural and economic orientation towards the West.

C. Labor Force

1. Population

Estimates of total population and labor force in 1955, 1960, 1965, 1970 and 1975 are shown in Table 4. In preparing these estimates it was

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TABLE 4

Population and Labor Force of the European
Satellites 1955-1975

A. <u>Population (Millions)</u>					
	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Group I Countries ^{a/}	52.28	56.72	61.38	66.03	71.15
Group II Countries ^{b/}	40.38	41.56	42.56	43.52	44.76
Total	93.16	98.33	103.94	109.65	115.91
B. <u>Population (Index, 1955 = 100)</u>					
Group I Countries ^{a/}	100	108.5	117.4	126.3	136.1
Group II Countries ^{b/}	100	101.9	104.1	106.7	109.5
Total	100	105.6	111.6	117.7	124.4
C. <u>Labor Force (Millions)</u>					
Group I Countries ^{a/}	28.50	30.52	32.58	34.60	36.79
Group II Countries ^{b/}	19.21	19.44	19.34	19.50	19.70
Total	47.71	49.96	51.92	54.10	56.49
D. <u>Labor Force (Index, 1955 = 100)</u>					
Group I Countries ^{a/}	100	107.1	114.3	121.4	129.1
Group II Countries ^{b/}	100	101.2	100.7	101.5	102.6
Total	100	104.7	108.3	113.4	118.4

^{a/} Includes Bulgaria, Poland, and Rumania

^{b/} Includes Czechoslovakia, East Germany and Hungary. East Germany is assumed to experience a net emmigration of 100,000 persons a year.

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TABLE 5

Agricultural and Non-Agricultural Labor
Force of the European Satellites, 1955-1975

A. Agricultural Labor Force (Millions)

	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Group I Countries ^{a/}	17.68	17.68	17.50-16.26	17.33-15.03	16.97-13.97
Group II Countries ^{b/}	5.39	5.39	5.23- 5.07	5.12- 4.80	5.01- 4.53
Total	23.07	23.07	22.73-21.33	22.45-19.83	21.98-18.50

B. Agricultural Labor Force (Index 1955 = 100)

Group I Countries ^{a/}	100	100	99-92	98-85	96-79
Group II Countries ^{b/}	100	100	97-94	95-89	93-84
Total	100	100	98-92	97-86	95-80

C. Non-Agricultural Labor Force (Millions)

Group I Countries ^{a/}	10.32	12.04	15.08-16.32	17.27-19.57	19.82-22.82
Group II Countries ^{b/}	13.32	14.05	14.11-14.27	14.33-14.70	14.69-15.17
Total	24.64	26.09	29.19-30.59	31.65-34.27	34.51-37.99

D. Non-Agricultural Labor Force (Index 1950 = 100)

Group I Countries ^{a/}	100	119	139-151	160-161	183-211
Group II Countries ^{b/}	100	102	102-103	104-106	106-110
Total	100	109	113-124	128-136	140-154

^{a/} See footnote ^{a/} Table 4.

^{b/} See footnote ^{b/} Table 4.

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TABLE 6

Industrial and Services Labor Force of the
European Satellites, 1955-1975

A. Services Labor Force (Millions)

	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>
Group I Countries ^{a/}	3.64	4.20	4.7-5.1	5.1-5.6	5.4-6.0
Group II Countries ^{b/}	4.11	3.97	3.9	3.9-4.0	4.1-4.2
Total	7.75	8.07	8.6-9.0	9.0-9.6	9.5-10.2

B. Services Labor Force (Index, 1955=100)

Group I Countries ^{a/}	100	115	129-140	140-154	143-165
Group II Countries ^{b/}	100	94	95	95-97	100-102
Total	100	104	111-116	116-134	122-132

C. Industrial Labor Force (Millions)

Group I Countries ^{a/}	7.13	8.64	10.4-11.2	12.2-14.0	14.4-16.3
Group II Countries ^{b/}	9.71	10.13	10.2-10.4	10.5-10.7	10.6-11.0
Total	16.89	18.77	20.6-21.6	22.7-24.7	25.0-27.8

D. Industrial Labor Force (Index, 1955=100)

Group I Countries ^{a/}	100	120	145-156	170-195	200-234
Group II Countries ^{b/}	100	105	105-107	108-110	109-113
Total	100	111	122-128	134-146	141-154

^{a/} See footnote ^{a/} Table 4.

^{b/} See footnote ^{b/} Table 4.

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assumed that net emigration from East Germany would continue at the rate of 100,000 persons a year. The population of the Group I countries is shown as increasing 36 percent during the 1955-75 period, and that of Group II countries by almost 10 percent. It will be noted that the population 15-64 increases more slowly than total population reflecting the war losses, the low birth rates during the war years, and East German emigration.

2. Employment

During the 1948-55 period Satellite employment grew somewhat more rapidly than the population 15-64. Unemployed and marginally employed labor were drawn into the industrial labor force; more women were brought into the labor force; older persons were forced to work on farms in the absence of the younger people who had moved to the cities. By 1953, however, the supply of excess labor appears to have been nearly exhausted. Future increases in employment will probably have to come from natural increments to the population of employable. Increased school enrollments and continued migration to urban areas where the rate of dependence is higher will tend to reduce the participation of the population in the labor force. A more rapid growth in the number of males than of females of employable age and energetic efforts to increase the participation of women in the labor force are likely to be offsetting factors.

It was assumed for the purposes of this projection that the percent participation of the population 15-64 in the labor force will be the same in 1975 as in 1955. This permits the determination of the percent participation of the total population in the labor force in 1975. Labor force estimates for the intervening years, 1960, 1965, and 1970, were obtained by interpolating between 1955 and 1975 the rate at which the total population participates in the labor force. This procedure results in a small increase in the participation rate of the population 15-64 to 1965 and a gradual decline thereafter. As is indicated in Table 4, the total Satellite labor force is projected to increase by 18 percent, but the labor force of the Group I countries is expected to increase 29 percent.

D. Agriculture

The aims of the Satellite governments in the field of agriculture are likely to be:

- 1) To increase agricultural production.
- 2) To free agricultural labor for use elsewhere.
- 3) To complete the collectivization program.

Estimates of agricultural production for 1960 are based primarily upon stated goals for the individual Satellites adjusted for anticipated short

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falls. For the period 1960 to 1975 it was assumed that agricultural production would grow at the same rate as population in the Satellites as a whole, but twice as fast in the Group I countries as in the Group II countries.

Output per worker in agriculture was assumed to rise by 1.5 to 2.5 percent per year in Group I countries and 1 to 1.5 percent per year in Group II countries. These trends are not inconsistent with the limited historical data available, or with experience in the USSR.

The agricultural labor force of the Satellites implied by these assumptions will decline from 23 million in 1955 to 18.5-22 million in 1975. In the Group I countries the decline is between 4 and 20 percent and in the Group II countries between 7 and 16 percent.

These projections imply a large increase in agricultural investment of both the labor-saving variety, and the yield-increasing variety. Failure to increase the share of investment directed to agriculture will seriously weaken the ability of the Satellite countries to increase output and shift labor from agriculture to industry.

E. Services and Trade

The estimate of the growth of the Services sector (including Trade) reflects both the increase in the labor force of this sector and the increase in the productivity of that labor force. For the period 1955 to 1960 the increase in the Services labor force was estimated from the planned goals of the Satellite economies. In addition, it was assumed that the output per worker in this sector would rise at a rate 2 to 3 percent per year.

From 1960 to 1975 it was assumed that the labor force in Services would grow at an average annual rate of approximately 2 percent in the Group I countries, and in the case of Group II countries, to recover the 1955 level by 1975. This implies a total Services sector labor force of 9.5 to 10.2 million persons in 1975, an increase of between 22 and 32 percent over 1955.

Labor productivity in the Services sector was assumed to grow at an average annual rate of 2 percent for both groups of countries. As a result, the output of the Services sector was projected to increase between 120 to 144 percent in Group I countries and approximately 50 percent in Group II countries.

F. Industry

The 1960 plan goals were generally accepted for the purposes of estimating output of the Industry sector (including industry proper, construction, transportation and communications) for that year. Short falls in agricultural production and the inclusion of home processing tended to reduce this index slightly. The growth of labor productivity implied by this procedure

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was compared with that calculated for the 1950-55 period. There were no substantial changes in the rate of growth of labor productivity in Poland, or Hungary. In the case of Czechoslovakia there was an increase in the rate of growth, while a decline in the rate of growth was experienced in East Germany.

The Industrial sector labor force was derived as a residual for the years 1965, 1970 and 1975. This procedure implies an increase of 48-64 percent in the Industrial labor force of the Satellites from 1955 to 1975. In the case of Group I countries the increase was 100-134 percent, while in Group II countries it was only between 10 and 13 percent.

Average annual increases in the output per worker were assumed to conform with the following pattern:

Group I Countries

1961-65	4-4.5 percent per year
1966-70	3.5-4.5 percent per year
1970-75	3.5-4.5 percent per year

Group II Countries

1961-65	6.0-6.5 percent per year
1966-70	5.0-6.0 percent per year
1970-75	5.0-5.5 percent per year

Regarding the discrepancy in the assumed rates of increase in output per worker between the two sets of countries, it was felt that the growth of output per worker in industry will be greater in those countries having smaller increments to the industrial labor force (Group II) than in those countries where the labor force is growing rapidly. This rests upon the assumption that the former countries will have a greater possibility of increasing capital stock per worker, and presumably, therefore, output per worker.

The growth of the Industrial labor force, in conjunction with the rising productivity of labor, projects an increase of 270 to 350 percent in the Industrial sector output during the period 1955-1975 for the Satellite countries. The increase in the Group I countries is well above the range, while the increase in the Group II countries falls well below.

G. Evaluation of Results

The rate of growth of Satellite GNP, an annual average between 5 and 6 percent, is certainly biased in an upward direction as a result of the price

base upon which the projection rests. For the most part, 1948 prices are incorporated into the basic data. The use of these prices for a group of economies undergoing such rapid growth seriously restricts the usefulness of this estimate for intertemporal and international comparison. Changing price relations, a product of growth itself, will undoubtedly have a decelerating effect upon the calculated rate of growth. Moreover, when compared with growth of more balanced economies, it is likely that changing price relations in the Satellites will exert a relatively greater decelerating influence.